Item No. 9
File No. 999

An Ordinance Establishing Revised Standards for Ground-Mounted Solar Energy Systems

WHEREAS the Town Council of West Hartford adopted an ordinance establishing standards for the location of various alternative energy systems on October 28, 2014; and

WHEREAS the subsequent installation of at least one accessory ground-mounted solar energy system on a residential lot within the Town has caused substantial public concern; and

WHEREAS the Town Council implemented a six-month moratorium on the construction of ground-mounted or pole-mounted solar energy systems on January 26, 2016 in order to consider further revisions to the applicable standards; and

WHEREAS such further standards have been developed in an effort to limit the size of these solar energy systems; and

WHEREAS ground-mounted solar energy systems include a subcategory of so-called "pole-mounted" solar energy systems which are typically characterized by larger panel arrays, heavy-duty construction and more commercial or industrial appearance which are inappropriate features within more densely developed residential zones

NOW THEREFORE BE IT ORDAINED BY THE TOWN COUNCIL OF WEST HARTFORD THAT Section 177-37.3 of the West Hartford Code of Ordinances is hereby repealed and the following is substituted in lieu thereof:

A. Definitions. As used in this section, the following terms shall have the meanings indicated:

BUILDING-INTEGRATED SYSTEM

A type of solar energy system which is constructed as an integral part of a principal or accessory building, rather than a separate mechanical device. Building-integrated systems replace or substitute for an architectural or structural component of the building. Building-integrated systems include, but are not limited to, photovoltaic or hot-water solar systems contained within roofing materials, windows, skylights, and awnings.

CLOSED LOOP GEOTHERMAL SYSTEM

A mechanism for using ground source heat pumps for heating and/or cooling a building which consists of a length of closed underground piping (which may be installed horizontally or vertically) containing heat transfer fluid; a heat exchange mechanism; and an air distribution system. This definition is expressly intended to exclude any form of open loop geothermal system.

FUEL CELL

A device in which a non-combustion reaction between a continuous fuel stream and a continuous oxidant stream is converted directly and continuously into

electrical energy while producing minimal emissions and negligible pollutants.

GROUND-MOUNTED SOLAR ENERGY SYSTEM

A free-standing solar energy system which is directly attached to the ground rather than being installed on another structure such as the roof of a home, shed or garage. Pole-mounted solar energy systems are a subcategory of ground-mounted solar energy systems in which the solar panel array is mounted atop a monopole structure, typically in connection with mechanical equipment designed to allow the solar panel array to track the movements of the sun.

OUTDOOR WOOD-BURNING FURNACE

An accessory structure or appliance designed to be located outside living space ordinarily used for human habitation and designed to transfer or provide heat, via liquid or other means, through the burning of wood or solid waste, for heating spaces other than where such structure or appliance is located, any other structure or appliance on the premises, or for heating domestic, swimming pool, hot tub or jacuzzi water. "Outdoor wood-burning furnace" does not include a fire pit, wood-fired barbecue or chiminea.

SOLAR ENERGY SYSTEM

A device or combination of devices or elements which rely upon direct sunlight as an energy source to produce heat and/or electricity. Off-grid photo-voltaic solar panels which serve only a single electrical fixture or appliance, such as low-voltage landscape lighting or similar, are exempt from the provisions of this section.

WIND GENERATOR

A system of blades, slats or vanes and associated mechanical and electrical conversion components whose purpose is to convert kinetic energy of the wind into rotational energy used to generate electricity, whether mounted on a tower, post or any other structure.

B. Prohibited equipment.

(1) Outdoor wood-burning furnaces are prohibited in all zones.

(2) Wind generators are prohibited in all zones.

(3) Open loop geothermal systems are prohibited in all zones.

(4) Thermal-electric power generation equipment which utilizes parabolic dish, parabolic trough, linear fresnell, or power technology to concentrate solar energy as its mechanism for generating heat is prohibited in all zones.

C. Permitted accessory uses.

(1) General requirements. Closed loop geothermal systems and solar energy systems are permitted as accessory uses in all zones and fuel cells are permitted accessory uses in the zones designated in § 177-6C subject to the following requirements:

(a) Where designed to generate electricity, the system must be designed to

produce energy primarily for consumption by buildings or other structures located on the same lot as the system, except that:

[1] When the lot receives electrical power supplied by a public utility company, excess energy generated may be supplied to the utility company or through the distribution system of the utility company to offset other usage of other electric accounts, in accord with applicable laws such as those permitting net or virtual net metering; and

[2] Multiple property owners may share ownership of, and/or the energy generated by the system provided, however, that the system shall meet all other requirements of this section with respect to each lot upon which it is located.

(b) Solar energy systems, fuel cells and the aboveground portion of closed loop geothermal systems [shall not be permitted within or above any required front yard and shall meet the minimum side and rear yard requirements in the zones where they are located]<u>shall be treated as accessory buildings which must comply with the requirements of §177-20E except as further specified in subsection C(3)(b)[2] of this section</u>.

(c) All transmission lines from solar energy systems, fuel cells and closed loop geothermal systems to any other building or structure shall be located underground to the extent feasible. This requirement shall not apply to transmission lines owned or managed by any public utility company.

(d) All solar energy systems, fuel cells and closed loop geothermal systems shall be installed according to manufacturer specifications, the requirements of any applicable utility company interconnect agreements and any applicable codes including, without limitation, the Connecticut Building Code.

(e) Where the system is designed to generate electricity, clearly visible warning signs concerning voltage shall be placed at the base of all pad-mounted transformers and substations or fence.

(2) In addition to the requirements of Subsection C(1), closed loop geothermal systems shall be subject to the following additional requirements:

(a) The design and installation of geothermal systems and related boreholes for geothermal heat pump systems shall conform to applicable industry standards, including those of the American National Standards Institute (ANSI), the International Ground Source Heat Pump Association (IGSHPA), the American Society for Testing and Materials (ASTM), the Air-Conditioning and Refrigeration Institute (ARI), or other similar certifying organizations, and shall comply with the Connecticut Building Code and all other applicable requirements of law such as, but not limited to those pertaining to the installation of wells. The manufacturer specifications shall be submitted as part of the application.

(b) Only nontoxic, biodegradable circulating fluids such as food grade propylene glycol shall be permitted.

(c) Horizontal closed loop systems shall be no more than 20 feet deep.

(d) Wellheads located above ground level shall be labeled clearly to identify that they are part of a closed loop geothermal system and not a source of potable water.

(3) In addition to the requirements of Subsection C(1), solar energy systems shall be subject to the following additional requirements:

(a) The system must be designed to avoid glare or reflection onto adjacent properties and adjacent roadways and shall not interfere with traffic or create a safety hazard.

(b) Height limitations:

[1] The highest point of a roof-mounted solar energy system shall not exceed the maximum height limitation for the building upon which it is mounted or two feet above the roof of the building to which it is attached, whichever height is lower, except:

[a] On buildings with flat roofs which are located in multifamily residential, commercial or industrial zones, a roof-mounted solar energy system may extend up to 10 feet above the roof of the building upon which it is installed, provided that the solar energy system shall be set back from the perimeter of the roof by a distance equal to one foot for each one foot in height less the height of any parapet wall at the perimeter of the roof; or

[b] Where a main use is subject to special use permit approval pursuant to § 177-42A, an applicant may seek such approval for installation of a roof-mounted solar energy system extending up to 10 feet above the roof of the building upon which it is installed.

[2] Where permitted, ground[Ground and pole]-mounted solar energy systems shall not exceed [the height limitation for accessory buildings in the zone where they are located]ten (10) feet in height. In residential zones ground-mounted solar energy systems shall not cover more than ten percent (10%) of the area of the required rear yard in which the system is to be located, except that where a main use is subject to special use permit approval pursuant to § 177-42A an applicant may seek such approval for installation of a ground or pole-mounted solar energy system extending up to the maximum height permitted for main buildings in the zone. Height shall be measured at the highest point on the system. Where components of

the solar energy system track the sun's movement across the sky, the height shall be measured relative to the system's most vertical position. Ground-mounted solar energy systems shall also be subject to the following limitations:

Zone:	Ground- Mounted	Pole-Mounted
All multi-family zones, R-6, R-10, R-13	Prohibited	Prohibited
R-20	Permitted in rear yard only	Prohibited
R-40, R-80	Permitted in rear yard only	Permitted in rear yard only
All commercial and industrial zones	Permitted	Permitted

(c) Building-integrated systems are deemed to be a component of the structure into which they are integrated and are subject to the requirements of this chapter which otherwise apply to the structure itself.

(d) The surface area of ground and pole-mounted solar energy systems, regardless of mounted angle, shall be calculated as part of the maximum lot coverage of all buildings.

(e) Solar energy systems shall be maintained in good working order at all times. If a solar energy system ceases to perform its originally intended function for more than six consecutive months, the property owner shall promptly remove the collector, mount and associated equipment except where it is in the process of being repaired or is out of service pending the completion of other ongoing work at the property.

(f) The owner of a property on which a solar energy system is installed and/or the owner(s) of the solar energy system itself assume(s) all risk associated with diminished performance of said system caused by any present or future use of nearby property that may interfere with the system's ability to produce power at its rated capacity, regardless of when that adjacent structure or landscaping is constructed or installed.

(4) In addition to the requirements of Subsection C(1), fuel cells are permitted accessory uses in the zones designated in § 177-6C subject to the following requirements:

(a) When located within an accessory structure, the fuel cell and all related equipment shall be completely enclosed by a minimum six-foot-high fence with a self-locking gate.

D. Permitted main uses.

(1) General requirements. Solar energy systems and fuel cells are permitted main uses

in the zones designated in § 177-6B subject to the following requirements:

(a) Unless the energy generated by the system is to be used exclusively to meet the needs of nearby properties through private transmission facilities, the applicant shall demonstrate that:

[1] Existing electrical distribution or transmission facilities are adequate to connect the solar energy system or fuel cell to the utility grid; and

[2] That the intended use of any electrical distribution or transmission facilities is permitted under existing law.

(b) Solar energy systems and fuel cells shall meet the minimum yard requirements for main buildings in the zones where they are located.

(c) The solar energy system or fuel cell shall be completely enclosed by a minimum six-foot-high fence with a self-locking gate.

(d) A clearly visible warning sign concerning voltage shall be placed at the base of all pad-mounted transformers and substations or fence.

(e) All on-site transmission lines shall be located underground to the extent feasible. This requirement shall not apply to transmission lines owned or managed by any public utility company.

(f) The applicant shall demonstrate that sufficient on-site parking exists to meet the needs of the facility.

(g) All solar energy systems or fuel cells shall be installed according to manufacturer specifications, the requirements of any applicable utility company interconnect agreements and any applicable codes including, without limitation, the Connecticut Building Code.

(2) In addition to the requirements of Subsection D(1), solar energy systems shall be subject to the following requirements:

(a) The system must be designed to avoid glare or reflection onto adjacent properties and adjacent roadways and shall not interfere with traffic or create a safety hazard.

(b) Solar energy systems installed as main uses shall not exceed 20 feet in height except that an applicant may seek special use permit approval pursuant to § 177-42A for installation of a solar energy system extending up to the maximum height permitted for main buildings in the zone where there is good cause to increase heights to more than 20 feet. In the case where components of the solar energy system track the sun's movement across the sky, the height shall be measured relative to the system's most vertical position.

(c) The surface area of ground or pole-mounted solar energy systems, regardless of mounted angle, shall be calculated as part of the maximum lot coverage of all buildings.

(d) Solar energy systems which are obsolete or otherwise no longer in use shall be removed completely. For purposes of this subsection, a solar energy system shall be deemed to be no longer in use if it has not been used to generate electricity for a continuous period of six months except where it is in the process of being repaired or is out of service pending the completion of other ongoing work at the property.

(e) The owner of a property onto which a solar energy system is installed and/or the owner(s) of the solar energy system itself assume(s) all risk associated with diminished performance of said system caused by any present or future use of nearby property that may interfere with the system's ability to produce power at its rated capacity, regardless of when that adjacent structure or landscaping is constructed or installed.

[E. Moratorium. Notwithstanding the provisions of this section, the installation of ground-mounted or pole-mounted solar energy systems shall not be a permitted use in any residential zone until the Town Council, acting as the Town's zoning authority, adopts revisions to the zoning ordinances regulating such systems or for six months following the effective date of this subsection, whichever is sooner.]

(Van Winkle)
9/27/16

Approved as to form and legality:

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Corporation Counsel